

The Regenstrief Medical Record System Cross-Institutional Usage, Note Writing, and MOSAIC/HTML

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The Regenstrief Medical Record System (RMRS) is used by three hospitals at the Indiana University Medical Center campus, and thirty off-campus clinic sites. It also operates at Wilford Hall Medical Center and Brooks Army base in San Antonio, Thomason Hospital in El Paso, Texas, and other sites. In Indianapolis, it captures data for about 60,000 hospitalizations and 600,000 outpatient encounters per year. Two thousand care providers (nurses, physicians, medical students) access RMRS data each month at Indiana University, Riley, and Wishard hospitals.

In Indianapolis, RMRS gathers data from multiple laboratory, pharmacy, dictation transcription, ADT and order entry systems, all of which communicate through HL7 messages. Hospital vital signs, EKG tracings and laboratory results come directly from automated instruments. If a provider dictates into an institutionally supported transcription system, we capture the text in the RMRS (we do not yet capture microcassette recordings transcribed by the physicians private secretary). We invest in manual entry to capture problem lists, key measurements obtained at clinic visits, and to record results from the ancillary services with smaller work volumes (EMG, EEG, cardiac echoes, cardiac cath). Researchers and managers can retrieve patient data from the medical records system, based on the value of coded and numeric results, in seconds to minutes (depending upon the query).

At the time of this writing, physicians from medicine, anesthesia, general surgery, neurology, neurosurgery, and orthopedics write all hospital orders through the system. (Obstetrics, pediatrics and psychiatry will be completed in the next three months). The physicians' work stations provide flowsheets, retrieval of EKG tracings, medical record flowsheets, reminders, and automated guidelines, as well as Medline retrievals through Grateful Med, online textbooks, and full text of several medical journals.

Physicians are now writing notes through the

system on a limited basis. In the hospital, what had been the brief chart discharge note is now keyed directly into the computer by the responsible physician, along with a number of variables required for discharge planning: post-hospital destination, orders for after care, mental status, and chest xray results if the patient is going to an institution. On a voluntary basis a handful of physicians are typing all of their clinic notes into the computer. One physician and his team of nurse practitioners are typing all of their medical notes about homeless patients as they attend them at twelve different homeless shelters.

We have begun a collaboration with the Emergency Departments (EDs) of two private hospitals (Methodist and Community), and a large pharmacy chain in Indianapolis. Both of the EDs send us an electronic "registration" record when a patient registers in their ED. Through a special linking algorithm we determine whether the patient is also registered in the RMRS. As part of a clinical trial and under a special confidentiality agreement, we print a summary of the patient's RMRS record in the remote ED. On a pilot basis, the pharmacy chain sends us all prescriptions for patients in a defined "catch" area and we use the same algorithm to link them to the Wishard data base.

As medical institutions merge into larger and more complex systems, they increasingly need a universal but secure access to patient data. We have converted the RMRS display system to HTML files displayed on MOSAIC browsers. In one step we convert from character based to GUI displays, eliminate any platform bias (we can deliver to PCs, MacIntoshes, Unix workstations, etc.), provide access to images as well as text, provide access to anyone on the Web, and, with the new encrypted HTML, maintain strict confidentiality. We will discuss and demonstrate all of the above features,

Supported in part by contract #N01-LM-4-3510, Nat'l Library of Medicine, and grant #R01 HS07719-01, AHCPR.